

AMENDMENTS TO THE CLAIMS

Claims 1-20 (Canceled)

Claim 21 (Currently Amended) A method for inspecting a semiconductor wafer surface, comprising:

scanning a semiconductor wafer with a laser beam directed perpendicularly to said semiconductor wafer;

detecting at least one of scattered and reflected light from a surface of said semiconductor wafer by multiple light optics having different detecting angles, respectively, relative to ~~an incident light~~ said laser beam, wherein at least one of said multiple light optics is a high-angle light optic having a detecting angle that is from 5° to 20° relative to said laser beam and at least another of said multiple light optics is a low-angle light optic having a detecting angle that is from 25° to 75° relative to said laser beam; and

determining a type and approximate shape of an occurrence associated with said semiconductor wafer based on a ratio of light intensities from said multiple light optics.

Claim 22 (Previously Presented) The method according to claim 21, wherein a laser surface inspection apparatus having at least two optics relative to one incidence is used to detect the at least one of scattered and reflected light.

Claim 23 (Previously Presented) The method according to claim 21, wherein said semiconductor wafer comprises an epitaxial semiconductor wafer.

Claim 24 (Previously Presented) The method according to claim 21, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where light intensity from a high-angle light optic is A and light intensity from a low-angle light optic is B.

Claim 25 (Previously Presented) The method according to claim 21, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 26 (Previously Presented) The method according to claim 21, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined based upon the following table

Relations between A and B or ranges	Actual types
$A \geq B \times 1.13$	Stacking Fault
$A < B \times 1.13$	Non-epi-layer originated extraneous substance (adherent particle)
$B < 90 \text{ nm}$ and $A > 107 \text{ nm}$	Micro-crystallographic-defect (hillock, shadow, dislocation)
$B > 160 \text{ nm}$ and $A < 107 \text{ nm}$	Abnormal growth (large-pit, projection)
Others	Abnormal product

where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 27 (Previously Presented) The method according to claim 21, wherein said semiconductor wafer comprises a mirror-finished semiconductor wafer.

Claim 28 (Previously Presented) The method according to claim 27, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined

depending on a combination of A, B, and A/B, where light intensity from a high-angle light optic is A and light intensity from a low-angle light optic is B.

Claim 29 (Previously Presented) The method according to claim 27, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 30 (Previously Presented) The method according to claim 27, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined based upon the following table

Relations between A and B or ranges	Actual types
$A \geq B \times 1.13$ or $B < 90 \text{ nm}$ and $A > 107 \text{ nm}$	Scratch, flaw, and shallow pit
$A < B \times 1.13$	Adherent particle or COP
$B \geq 85 \text{ nm}$ and $A < 107 \text{ nm}$	Grown-in defect in bulk near surface

where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 31 (Previously Presented) The method according to claim 21, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined based upon the following table

Relations between A and B or ranges	Actual types
$A \geq B \times 1.13$ or $B < 90 \text{ nm}$ and $A > 107 \text{ nm}$	Scratch, flaw, and shallow pit
$A < B \times 1.13$	Adherent particle or COP
$B \geq 85 \text{ nm}$ and $A < 107 \text{ nm}$	Grown-in defect in bulk near surface

where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 32 (Currently Amended) A method for inspecting a semiconductor wafer surface, comprising:

scanning a semiconductor wafer with a laser beam directed perpendicularly to said semiconductor wafer;

detecting at least one of scattered and reflected light from a surface of said semiconductor wafer by multiple light optics having different detecting angles, respectively, relative to ~~an incident light~~ said laser beam, wherein at least one of said multiple light optics is a high-angle light optic having a detecting angle that is from 5° to 20° relative to said laser beam and at least another of said multiple light optics is a low-angle light optic having a detecting angle that is from 25° to 75° relative to said laser beam;

from a difference in standard particle conversion sizes of a light point defect based on a ratio of light intensities from said multiple light optics, calculating one of

(i) a difference between a horizontal length and a vertical height of a light point defect present on a surface of said semiconductor wafer, and

(ii) a difference between two orthogonal horizontal lengths of a light point defect present on a surface of said semiconductor wafer; and

determining a type and approximate shape of an occurrence associated with said semiconductor wafer.

Claim 33 (Previously Presented) The method according to claim 32, wherein a laser surface inspection apparatus having at least two optics relative to one incidence is used to detect the at least one of scattered and reflected light.

Claim 34 (Previously Presented) The method according to claim 33, wherein said semiconductor wafer comprises an epitaxial semiconductor wafer.

Claim 35 (Previously Presented) The method according to claim 33, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where light intensity from a high-angle light optic is A and light intensity from a low-angle light optic is B.

Claim 36 (Previously Presented) The method according to claim 33, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 37 (Previously Presented) The method according to claim 32, wherein said semiconductor wafer comprises an epitaxial semiconductor wafer.

Claim 38 (Previously Presented) The method according to claim 32, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where light intensity from a high-angle light optic is A and light intensity from a low-angle light optic is B.

Claim 39 (Previously Presented) The method according to claim 32, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined

depending on a combination of A, B, and A/B, where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 40 (Previously Presented) The method according to claim 32, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined based upon the following table

Relations between A and B or ranges	Actual types
$A \geq B \times 1.13$	Stacking Fault
$A < B \times 1.13$	Non-epi-layer originated extraneous substance (adherent particle)
$B < 90 \text{ nm}$ and $A > 107 \text{ nm}$	Micro-crystallographic-defect (hillock, shadow, dislocation)
$B > 160 \text{ nm}$ and $A < 107 \text{ nm}$	Abnormal growth (large-pit, projection)
Others	Abnormal product

where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 41 (Previously Presented) The method according to claim 32, wherein said semiconductor wafer comprises a mirror-finished semiconductor wafer.

Claim 42 (Previously Presented) The method according to claim 41, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where light intensity from a high-angle light optic is A and light intensity from a low-angle light optic is B.

Claim 43 (Previously Presented) The method according to claim 41, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined depending on a combination of A, B, and A/B, where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 44 (Previously Presented) The method according to claim 41, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined based upon the following table

Relations between A and B or ranges	Actual types
$A \geq B \times 1.13$ or $B < 90 \text{ nm}$ and $A > 107 \text{ nm}$	Scratch, flaw, and shallow pit
$A < B \times 1.13$	Adherent particle or COP
$B \geq 85 \text{ nm}$ and $A < 107 \text{ nm}$	Grown-in defect in bulk near surface

where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.

Claim 45 (Previously Presented) The method according to claim 32, wherein the type and approximate shape of an occurrence associated with said semiconductor wafer is determined based upon the following table

Relations between A and B or ranges	Actual types
$A \geq B \times 1.13$ or $B < 90 \text{ nm}$ and $A > 107 \text{ nm}$	Scratch, flaw, and shallow pit
$A < B \times 1.13$	Adherent particle or COP

$B \geq 85 \text{ nm}$ and $A < 107 \text{ nm}$	Grown-in defect in bulk near surface
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where standard particle conversion size of a light point defect detected in a high-angle light optic is A and standard particle conversion size of a light point defect detected in a low-angle light optic is B.